
**‘Elite’ Program
ACD Pilot Project
Report to Steering Group**

Sydney, January 2010

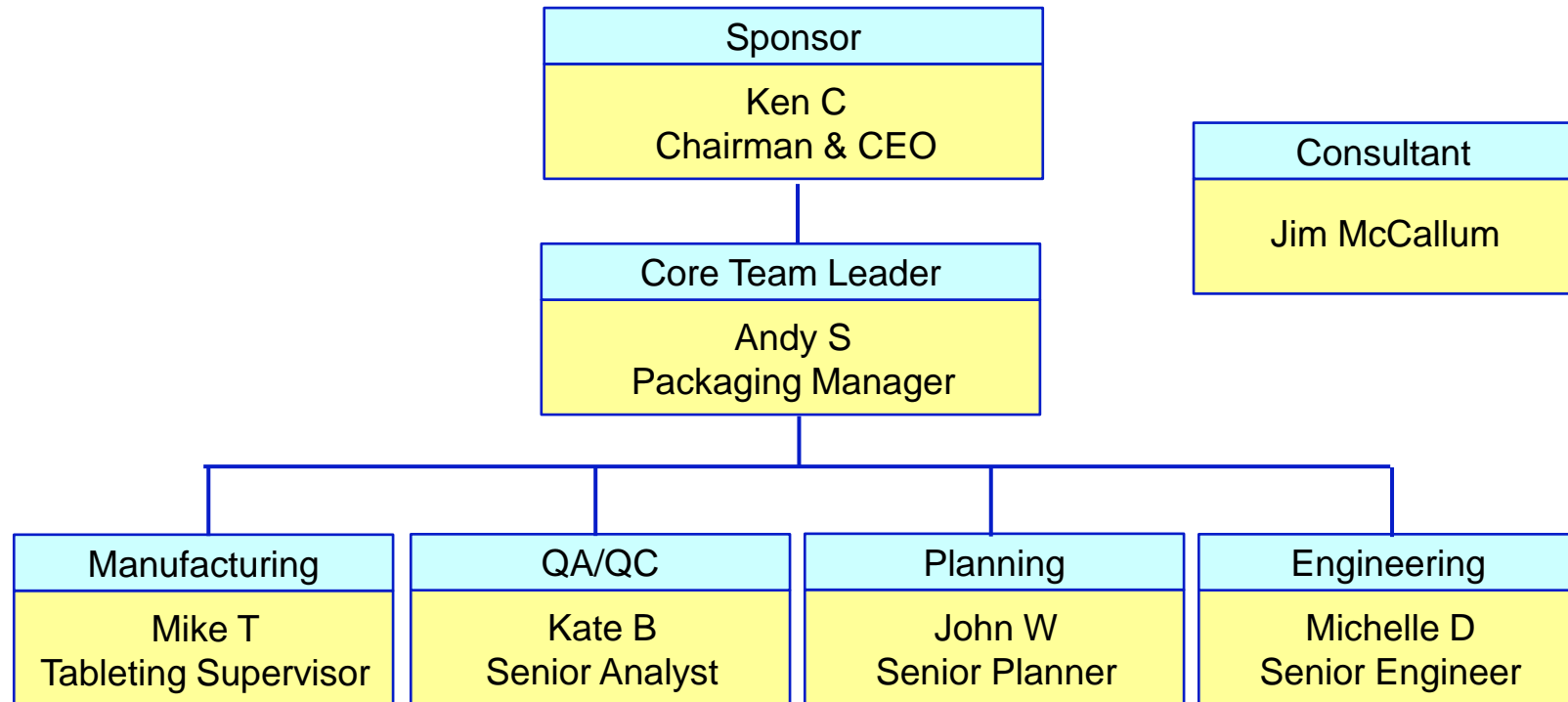
Agenda

- Introduction
- 'Elite' Design
- Implementation Plan
- Business Case
- Discussion

Poster



'Elite' Core Team

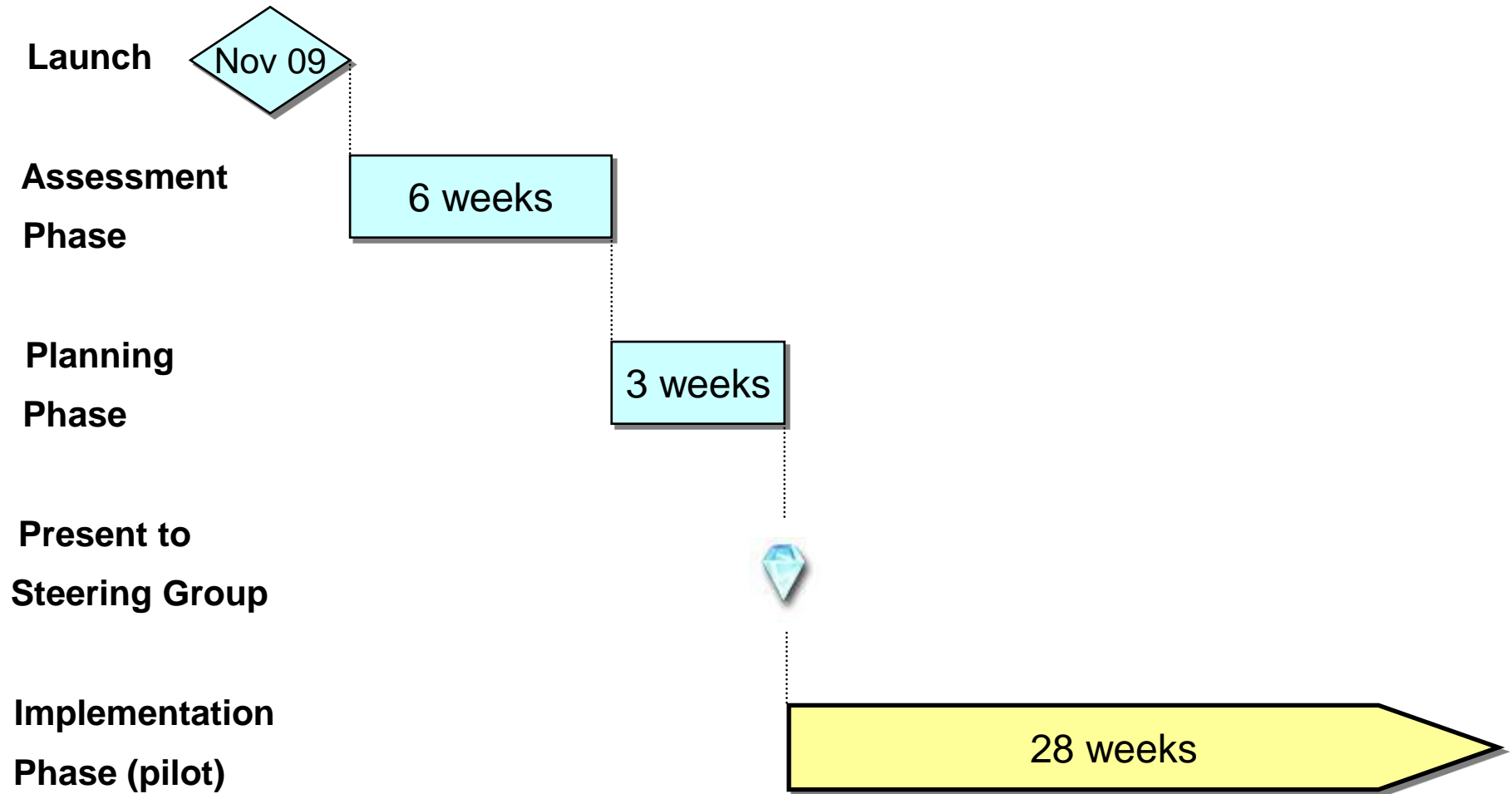


'Elite' Objectives

- Minimise Thruput Time / Lead Time
- Maximise Thruput Rate / Productivity
- Get it Right First Time

- **Key Enablers:**
- Synchronise Support Functions – QA/QC
- Planning & Scheduling
- Organisation

'Elite' Timescales



Agenda

- Introduction
- **'Elite' Design**
- Implementation Plan
- Business Case
- Discussion

Thruput Time – TPT / PLT

- Walk Thru for ACD:

	Current	
No of Steps	60	
No of Value Adds	6	
No of Non-Value Adds	54	
VA Process Time (batch)	37h	
TPT (Thruput Time)	32.3d	
PLT (Pipeline Lead Time)	64.1d	
Distance Moved	984m	

Thruput Time – TPT / PLT

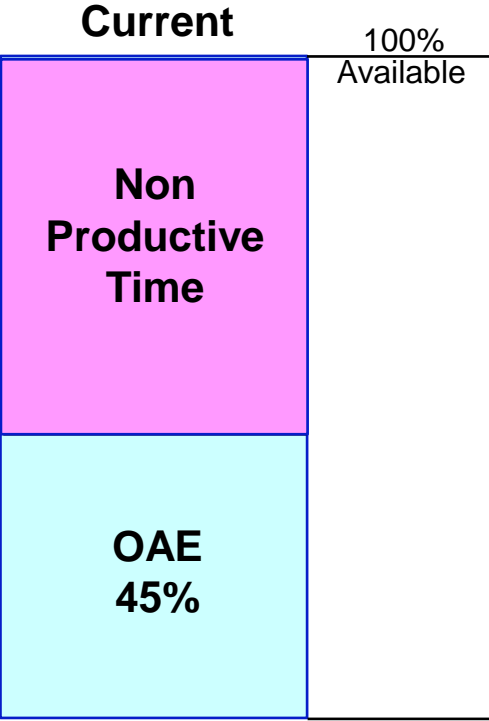
- Walk Thru for ACD:

	Current	'Elite' Practical Vision
No of Steps	60	41
No of Value Adds	6	6
No of Non-Value Adds	54	35
VA Process Time (batch)	37h	16.3h
TPT (Thruput Time)	32.3d	4d
PLT (Pipeline Lead Time)	64.1d	10d
Distance Moved	984m	502m

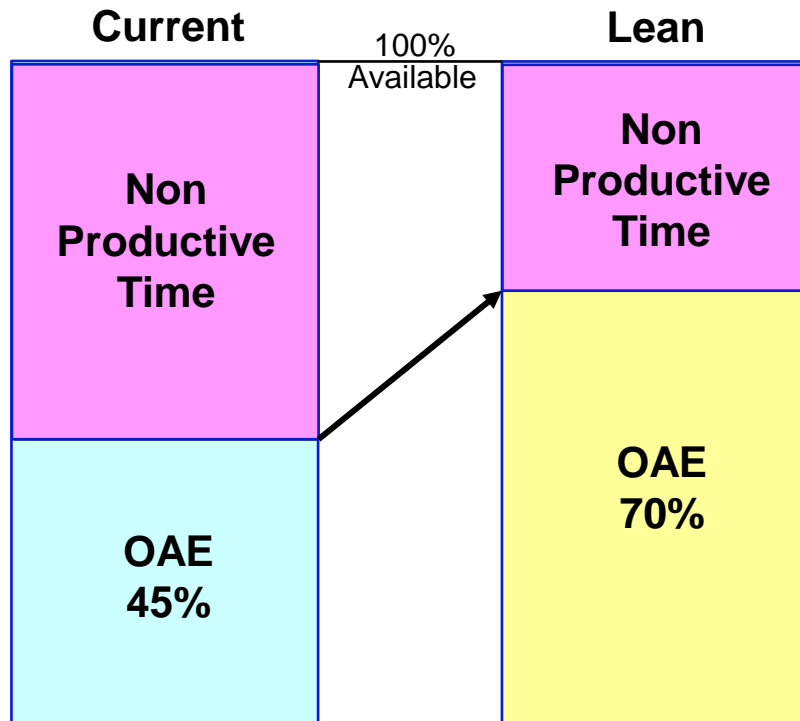
Thruput Time – TPT / PLT Vision for ACD

	Curr Cycle (h)	New Cycle (h)	TPT (d)	PLT (d)
Inbound				+5
Dispensing	2	2		
Granulation	1.5	1.5	1	
Tableting	20	8.6	1	
Packaging	16	5.7	1	
QA Release			1	
Outbound				+1
			Total 4d	10d

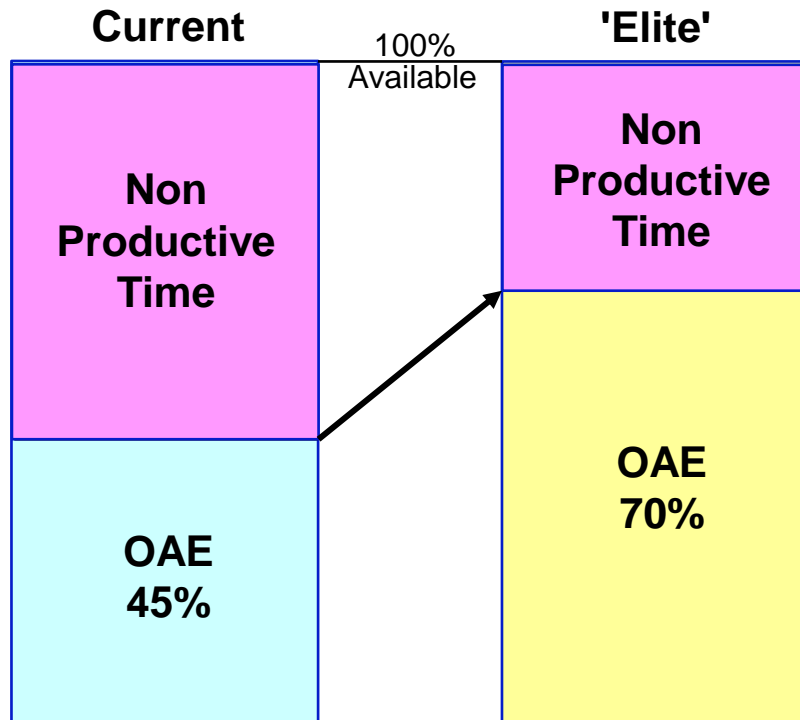
Thruput Rate – OAE in Tableting



Thruput Rate – OAE in Tableting

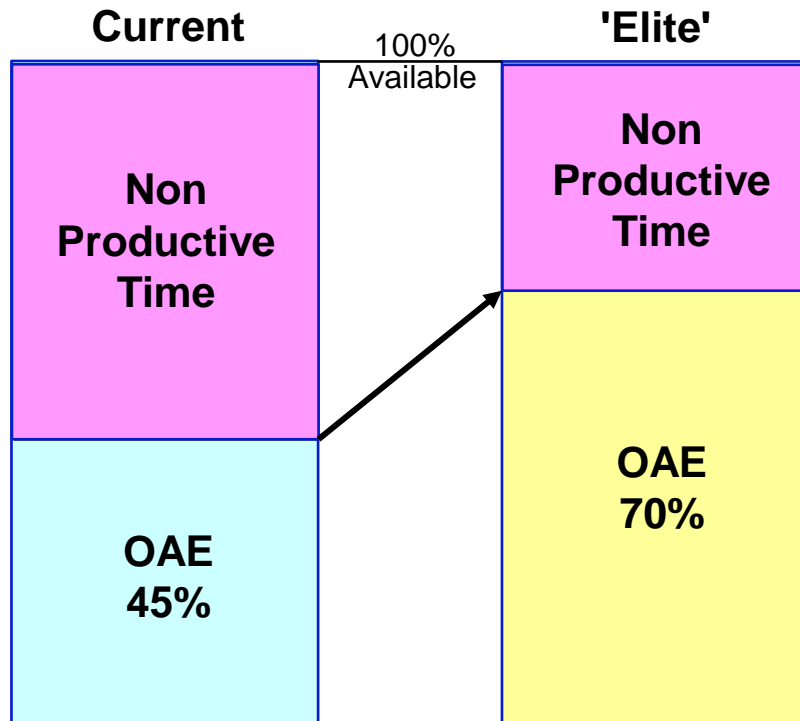


Thruput Rate – OAE in Tableting



Improve OAE by -
Reducing Changeover Time
Reducing Stoppage Time
Running at Max Validated Rate
Running During Breaks

Thruput Rate – OAE in Tableting



Improve OAE by -
Reducing Changeover Time
Reducing Stoppage Time
Running at Max Validated Rate
Running During Breaks

Result is increase in TPR from
4 batches of ACD per week to
9 batches of ACD per week
with same equipment and
same resources

Thruput Rate – OAE in Tableting – Changeover Times

	Current	'Elite'	Reduction
Full Change	6h	1h 52m	69%
Lot Change	1h 30m	0h 29m	68%

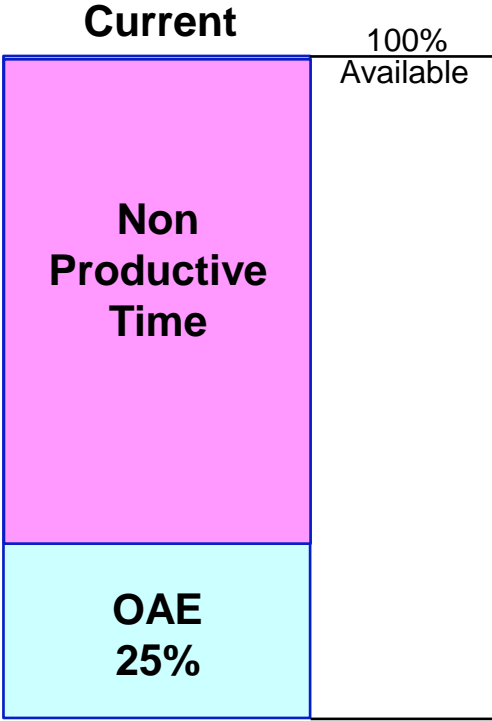
- Initial Video Analysis for ACD 20mg Changeover
- Includes changeover and cleaning
- Exchangeable pieces cleaned and kitted off line
- Dedicated operator in cleaning room
- Additional operator from granulation during changeover
- Choreographed with intensive training

Thruput Rate – OAE in Tableting – Run Rate

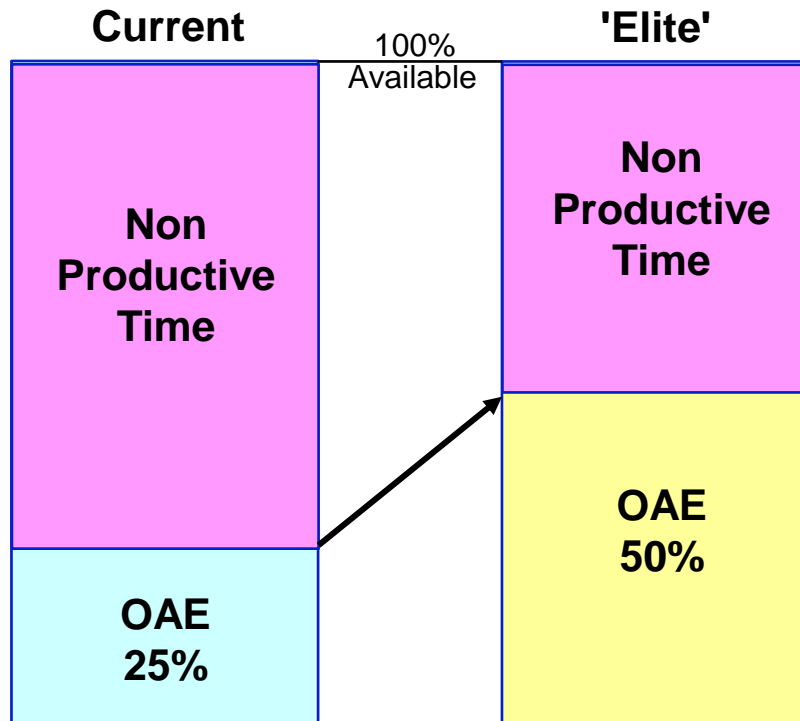
Validated Range	Current	'Elite'	Increase
60k to 120k tab/hr	80k	120k	50%

- Test runs for ACD 20mg only
- Tested by increasing speed in 5k increments
- No apparent quality problems – all tablets to spec
- Additional samples taken during test runs for confirmation
- Yield levels >99% throughout
- Will apply same approach to other products

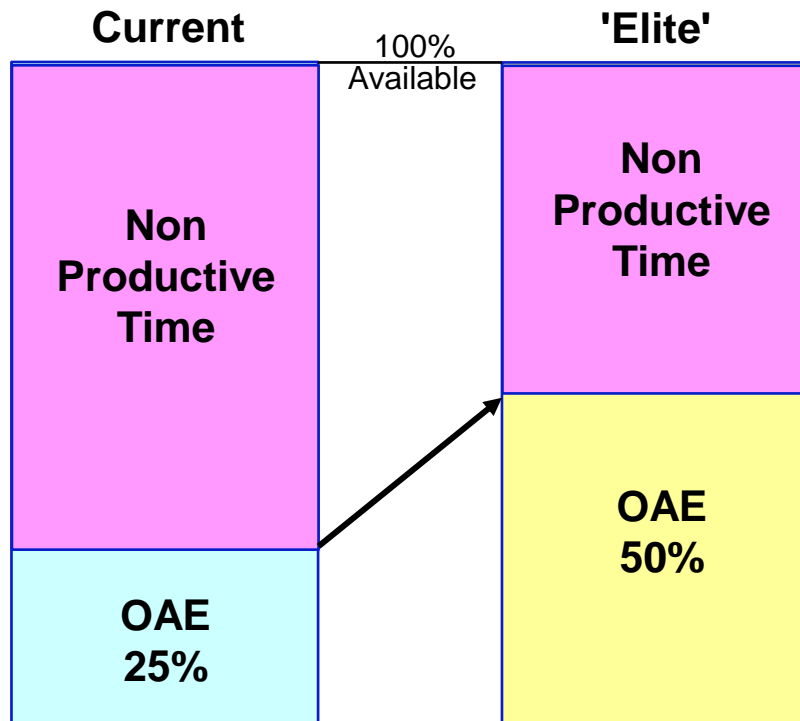
Thruput Rate – OAE in Packaging



Thruput Rate – OAE in Packaging

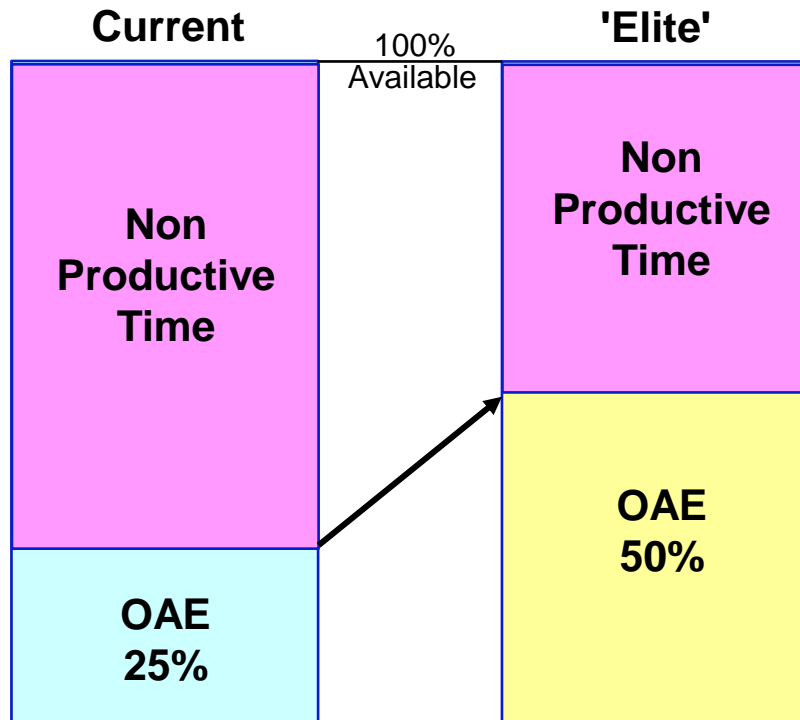


Thruput Rate – OAE in Packaging



Improve OAE by –
Reducing Changeover Time
Reducing Stoppage Time
Running at Max Validated Rate
Running During Breaks
Training Multi-skilled Operators
Harmonising Pack Materials

Thruput Rate – OAE in Packaging



Improve OAE by –
Reducing Changeover Time
Reducing Stoppage Time
Running at Max Validated Rate
Running During Breaks
Training Multi-skilled Operators
Harmonising Pack Materials

Result is that
packaging line can also
handle 9 batches of ACD / wk
with same equipment and
same resources

Thruput Rate – OAE in Packaging – Changeover Times

- Initial Video Analysis for ACD 20mg Changeover
- Includes changeover and cleaning

	Current	'Elite'	Reduction
Full Change	6h 35m	2h 12m	67%
Lot Change	1h 42m	0h 38m	63%

Thruput Rate – OAE in Packaging – Harmonisation

- Initial Analysis for ACD Harmonisation
- Proposals in preparation

	Current	'Elite'
Bottle Dimensions	4	2
Leaflet Dimensions	4	1
Overwraps	6	0
Case Dimensions	4	1

Thruput Rate – OAE in Packaging – Stoppages (from Gamed)

Reason	Time (h:m)	Freq	%
Filler	8:55	124	11.14
Microstops	7:18	556	9.12
Labeller	3:57	18	4.93
Packer	2:57	38	3.68
Cartoner	2:18	46	2.87
Capper	2:04	23	2.58
Leaflet	1:09	14	1.43
Check Weigher	0:04	1	0.08
Bottle Feeder	0:01	1	0.03
Total	28:41		35.86

Note: Data from week 02

Right First Time – MBR Current Example (Liquids)

		Sign	Sign	Date
<p>12. Transfer 1800l of purified water to the manufacture tank. Ensure that the temperature of the water is 15 – 25C. Ensure tank mixer is on at 55 – 80 rpm</p>	<p>Tank ID</p> <p>CMS Mixer ID</p> <p>Tank Mixer ID</p> <p>2300004</p> <p>K134 Purified Water</p> <p>Volume Check.....</p> <p>Temperature Check</p> <p>Tank Mixer On</p> <p>Tank Mixer Speed</p>			

- Too many entries required
- Cramped signature and date spaces
- Prone to errors and omissions – currently only 50% RFT

Right First Time – MBR 'Elite' Example (Liquids)

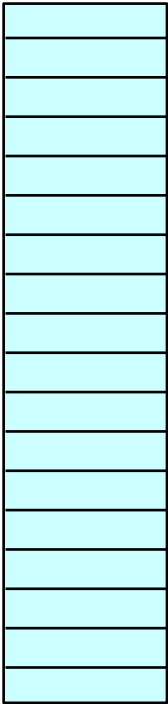
Step	Mat'l ID			Op'r	Check	Date
12A	2300004	Transfer 1800l of K134 purified water to manufacture tank	Tank ID	T431C		
12A	N/A	Volume Check				
12B	N/A	Ensure temperature of water is 15 – 25C	CMS Mixer ID	M194		
12B	N/A	Temperature Check				
12C	N/A	Ensure tank mixer is on at 55 – 80 rpm	Tank Mixer ID	M197		
12C	N/A	Tank Mixer Speed Check				

- Entries reduced from 28 to 12 (57%)
- Colour coded entries – blue for value – cannot move on till green complete
- Simpler, easier to follow, less chance of errors – aim for 100% RFT

Right First Time – Deviations

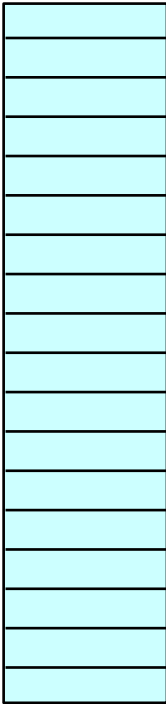
- Total of 21 deviations on ACD year to date – all avoidable – no batches rejected
- Establish and rank root causes
- Develop action plan for top five (in conjunction with Production and Quality)
- Train all parties in the solutions to top five
- Implement solutions (including control charts where appropriate)
- Have QA available on shop floor to help resolve deviations in <24h

QA/QC Synchronisation - QC Testing



**Current
18 days**

QA/QC Synchronisation - QC Testing



**Current
18 days**

Improve flexibility of analysts

Whiteboard for active planning

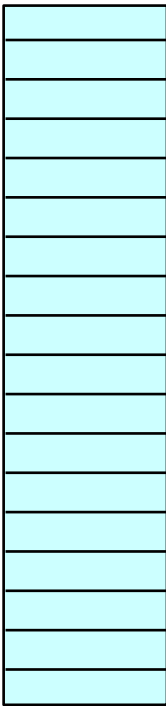
FIFO

'Elite' KPIs

Standardised procedures

Investment to speed response times

QA/QC Synchronisation - QC Testing



**Current
18 days**

Improve flexibility of analysts

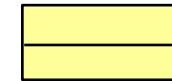
Whiteboard for active planning

FIFO

'Elite' KPIs

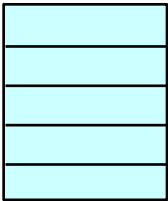
Standardised procedures

Investment to speed response times



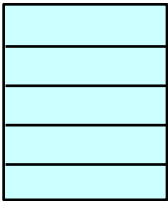
**'Elite'
<2 days**

QA/QC Synchronisation – QA Release



**Current
5 days**

QA/QC Synchronisation – QA Release



**Current
5 days**

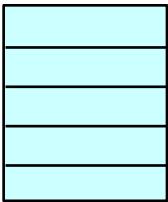
Simplify MBR

Minimise Deviations

If batch record queue
>1day take action

Replace batch at next
rhythm if Deviations
not resolved

QA/QC Synchronisation – QA Release



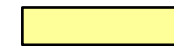
**Current
5 days**

Simplify MBR

Minimise Deviations

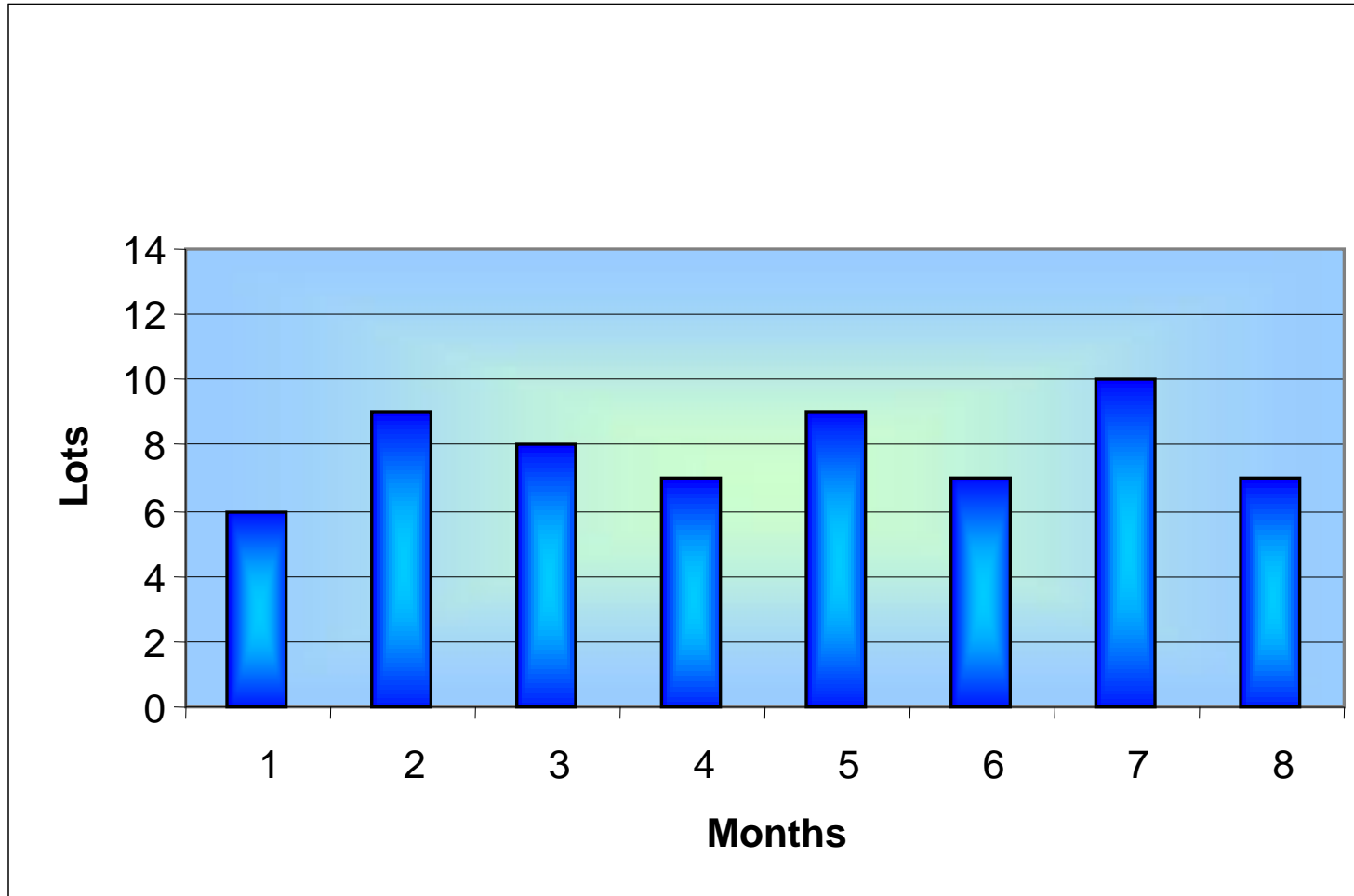
If batch record queue
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Replace batch at next
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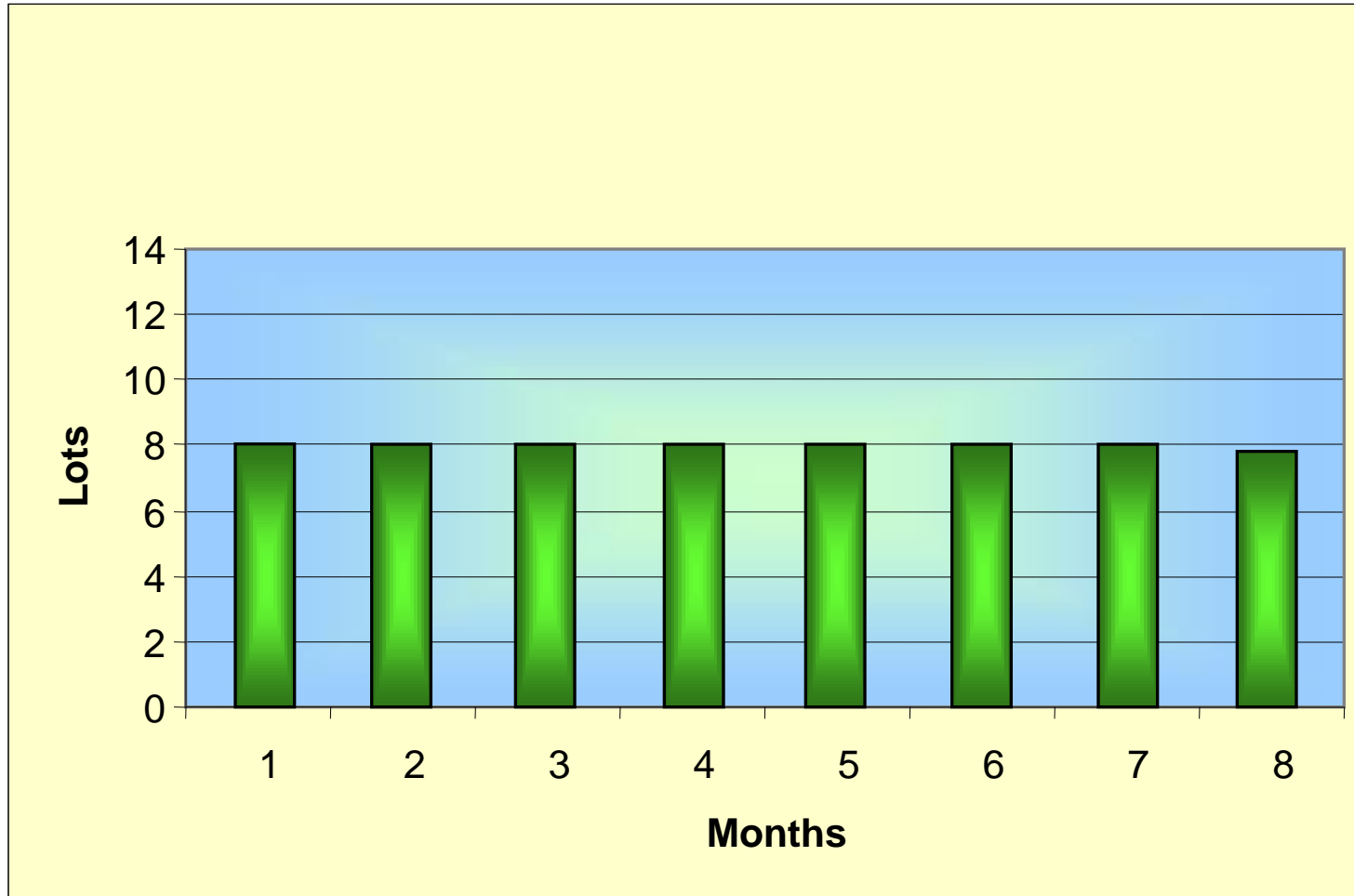


**'Elite'
<1 day**

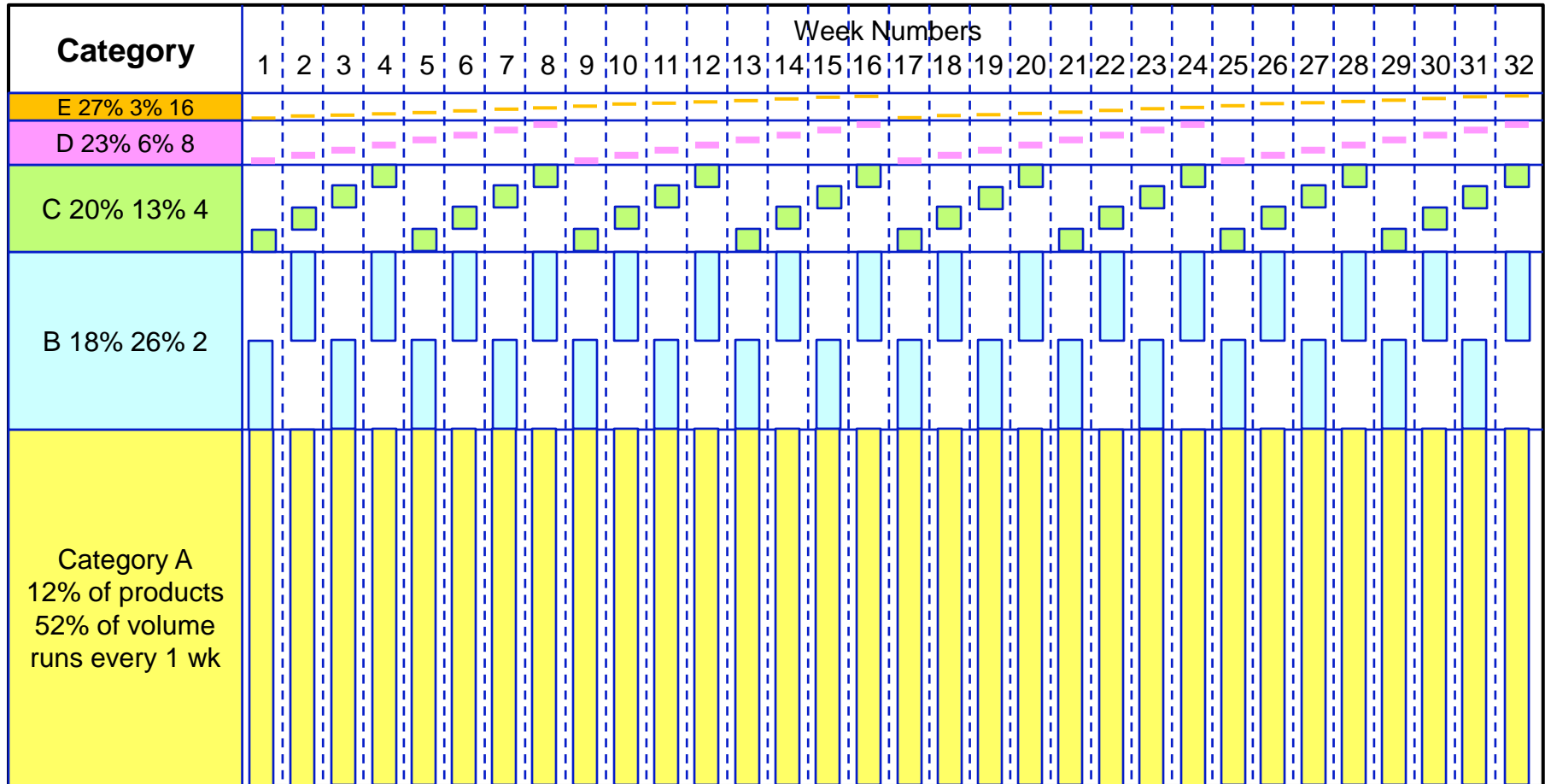
Planning & Scheduling – Bulk Current – ACD 20mg



Planning & Scheduling – Bulk 'Elite' – ACD 20mg



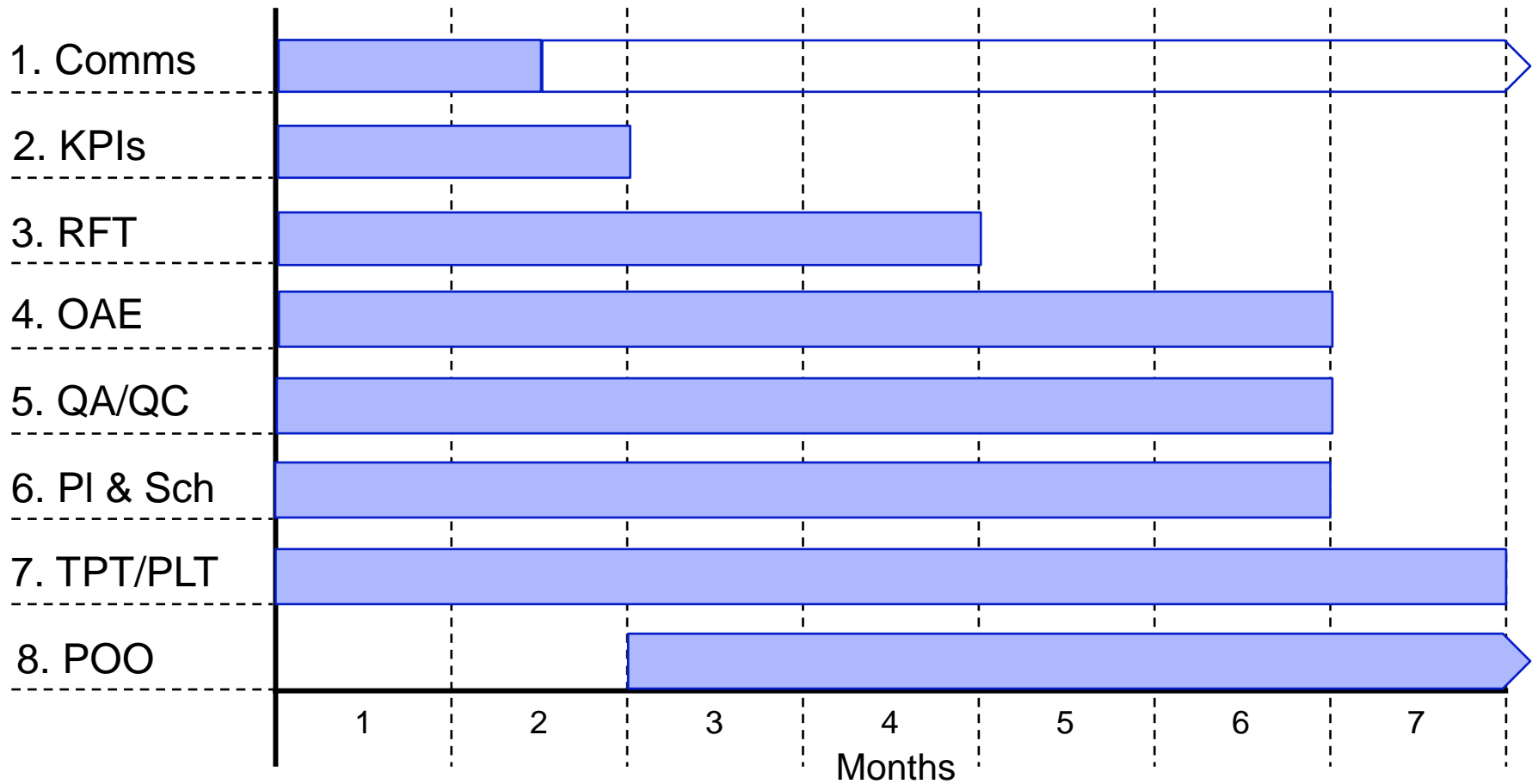
Planning & Scheduling – Packaging Rhythm Wheels (Typical)



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Milestone Plan



Milestone 4. OAE – Briefing Document

SCOPE: To achieve OAE targets for Tableting and packaging of ACD

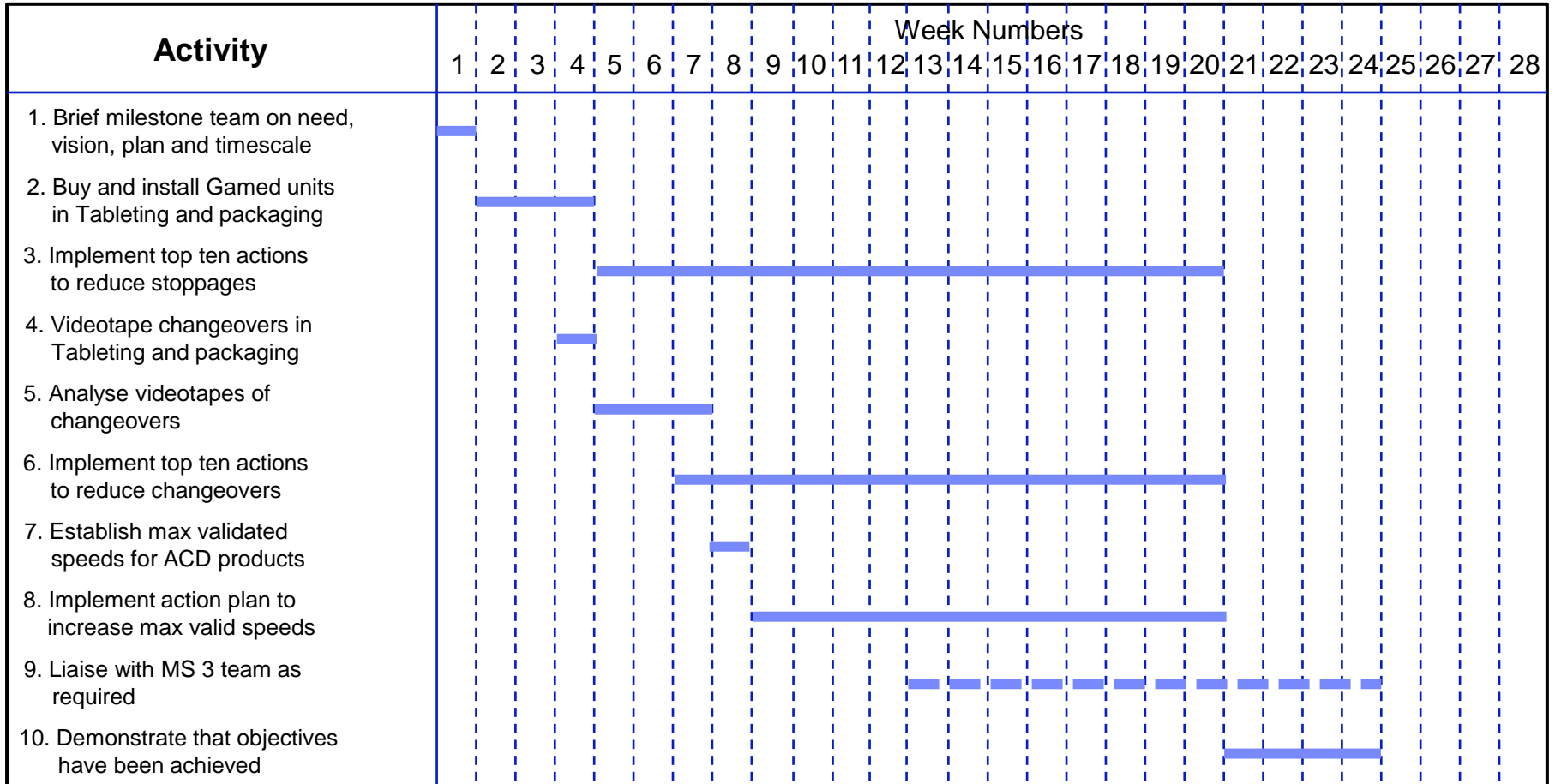
KEY CHANGE ISSUES:

- Reduce changeover times
- Reduce stoppage times
- Run consistently at max validated speed

CRITERIA FOR SUCCESS:

- Tableting 70% and Packaging 40% by month 6
- Sustained for two weeks

Milestone 4. OAE – Activity Plan



Milestone Teams

Milestone	Depts Involved	Team Members	Leader/Facilitator
Steering Group	SMG; 'Elite'	Ken C; Peter W; Martin F; Brian J; Ian A; Andy S	Ken C (L) Andy S (F)
1. Comms	'Elite'; Communications; HR; Production; Quality; Sales	Andy S; Sharon B; Jan T; Bob W; Margaret N; Jean D	Andy S (L); Sharon B (F)
2. KPIs	Engineering; Production; Finance; Planning; IT;	Michelle D; Alan F; Phil S; Joe C; Frank J;	Michelle D (L)
3. RFT	Engineering; Production; QA; QC;	Michelle D; Bob W; Dave B; Annabelle J; Betty W	Michelle D (L) Annabelle J (F)
4.OAE	Manufacturing; Packaging; Engineering; IT	Mike T; Kevin S; Andy S; Steve W; Ed J; Norman F Peter T; Frank J, Focus Gr	Mike T (L) Manufacturing Andy S (L) Packaging
5. QA/QC	QA; QC; Manufacturing; Packaging; Planning	Fred S; Kate B; Betty W; Kevin S; Steve W; Joe C	Kate B (L) Fred S (F)
6. PI & Sch	Planning; Sales; Production; Purchasing; Quality; IT	John W; Anne F; Carlos R; Sam Y; Kate B; Charles S	John W (L)
7. TPT/PLT	'Elite'; Sales; Finance	Andy S; Lean Core Team; Anne F; Phil S, Focus Gr	Andy S (L)
8. POO	SMG; 'Elite'; HR	Ken C; Peter W; Martin F; Brian J; Ian A; Andy S; Jan T	Ken C (L) Jan T (F)

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- **Business Case**
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Inventory Benefits – from reduced TPT

	Current inv in \$k		Potential savings		Savings ACD in \$k		Savings all products in \$k	
	ACD	All products	% min	% max	min	max	min	max
RM	860	4150	25	40	215	344	1038	1660
Pack	520	2230	25	40	130	208	558	892
WIP	720	2950	50	75	360	540	1480	2213
FG plant	2060	10750	35	50	721	1030	3763	5375
FG cust	240	1030	35	50	84	120	361	515
Total					1510	2242	7200	10655

Productivity Benefits (applied company wide)

- Before Lean: output budget for 2010: 57.6m units
site budget for 2010: \$67.3m
35% variable costs - \$23.6m
65% fixed costs - \$43.7m

Avg Unit Cost – \$1.17

Productivity Benefits (applied company wide)

- Before Lean: output budget for 2010: 57.6m units
site budget for 2010: \$67.3m
35% variable costs - \$23.6m
65% fixed costs - \$43.7m

Avg Unit Cost – \$1.17

- After Lean: + 10% increase in productivity
increase output to: 63.4m units
site budget would be: \$69.7m
35% variable costs - \$26.0m
fixed cost remain - \$43.7m

**Avg Unit Cost – \$1.10
6% reduction**

Productivity Benefits (applied company wide)

- Before 'Elite': output budget for 2010: 57.6m units
site budget for 2010: \$67.3m
35% variable costs - \$23.6m
65% fixed costs - \$43.7m
Avg Unit Cost – \$1.17
- After 'Elite': + 10% increase in productivity
increase output to: 63.4m units
site budget would be: \$69.7m
35% variable costs - \$26.0m
fixed cost remain - \$43.7m
**Avg Unit Cost – \$1.10
6% reduction**
- Without 'Elite': +10% increase in output – 63.4m units
site budget would be: \$74.0m
**Thus Saving from 'Elite'
\$4.3m**

Benefits Summary from 'Elite'

- Improved flexibility (shorter set up times, reduction of stoppages)
- Improved customer service (more consistent supply, to build trust)
- Increased capacity (up by 50% to >80m units by 2012 with same resources)
- Lower unit costs (down by >20% by 2012 on today's values)
- Improved profitability (up by >\$20m by 2012 compared with no 'Elite')
- Released working capital (up to \$10m by 2012 on today's output)
(up to \$15m by 2012 on higher output)

Note: Assumed that 50% capacity increase filled with additional products at same price / volume mix

Investments Summary

Investment	\$k
Washing equipment and storing for tooling	155
Equipment modifications for fast changeover	32
Gamed or equivalent system	16
Kanban and signalling system	12
NIR or equivalent for QC	45
Air tube transfer of samples to QC	60
Total – Pilot Phase this year	320
Additional fast changeover parts and equipment	85
Additional Gamed or equivalent system	42
Additional NIR or equivalent for QC	45
QC layout optimisation	180
Additional Total - Roll Out Phase next year	352

Conclusions

- 'Elite' can provide –
 - ▶ Fast, flexible, compliant production operations
 - ▶ Significant operational, financial and business benefits
 - ▶ Firm foundation for future improvements
 - ▶ Improved competitiveness for the Sydney facility
 - ▶ At minimal capital cost
- Therefore we would like your approval to begin implementation

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Back-up Slides

Milestone 1. Comms and Change Mgt – Briefing Document

SCOPE: To convince all employees that 'Elite' thinking is essential to our future competitiveness and growth

KEY CHANGE ISSUES:

- Use concise and clear communications
- Use several different channels regularly
- Introduce behavioural and cultural change

CRITERIA FOR SUCCESS:

- Survey is 75% positive

Milestone 2. 'Elite' KPIs – Briefing Document

SCOPE: To calculate and report the 'Elite' KPIs for pilot project

KEY CHANGE ISSUES:

- Gather, analyse and report data as automatically as possible
- Present KPIs structurally and visually
- Update daily as required
- Apply KPIs also to QA/QC

CRITERIA FOR SUCCESS:

- KPIs are clearly stated, accurate and presented for two weeks

Milestone 3. Right First Time – Briefing Document

SCOPE: To complete all ACD batch records right first time.
To eliminate all deviations but resolve within 24h any that occur

KEY CHANGE ISSUES:

- Simplify and improve batch records
- Have QA available in production
- Review all deviations in last twelve months
- Develop improvement program to eliminate deviations

CRITERIA FOR SUCCESS:

- When batch records from production are 100% RFT
- When we have no deviations for three months

Milestone 4. OAE – Briefing Document

SCOPE: To achieve OAE targets for Tableting and packaging of ACD

KEY CHANGE ISSUES:

- Reduce changeover times
- Reduce stoppage times
- Run consistently at max validated speed

CRITERIA FOR SUCCESS:

- Tableting 70% and Packaging 40% by month 6
- Sustained for two weeks

Milestone 5. QA/QC – Briefing Document

SCOPE: To have QA/QC fully synchronised with production for ACD

KEY CHANGE ISSUES:

- Release product in < 2 days
- Introduce 'Elite' KPIs
- Integrate QC schedule with production – FIFO
- Active planning using whiteboards – daily meeting
- Improve lab productivity

CRITERIA FOR SUCCESS:

- ACD consistently released in < 2 days for two weeks
- QCE in FP lab for ACD > 80% for two weeks

Milestone 6. Planning & Scheduling – Briefing Document

SCOPE: To better match supply with demand in 'Elite' ACD supply chain

KEY CHANGE ISSUES:

- Have more consistent bulk batch production
- Introduce rhythm wheels for packaging
- Reduce levels of raw materials, work in progress and finished goods
- Introduce collaborative planning with customers
- Consider introducing APS system

CRITERIA FOR SUCCESS:

- CSL >99% by volume and line item for one month

Milestone 7. TPT/PLT – Briefing Document

SCOPE: To achieve TPT/PLT targets for ACD

KEY CHANGE ISSUES:

- Keep batch moving
- Introduce Kanbans
- Integration of all other Milestones
- Do PV run for TPT in month 5
- Develop inbound and outbound improvements

CRITERIA FOR SUCCESS:

- PV run successful
- Meet targets for all ACD batches over two weeks

Milestone 8. POO – Briefing Document

SCOPE: To introduce POO structure company-wide if agreed by Senior Management Group (subject to separate discussion in month 2)

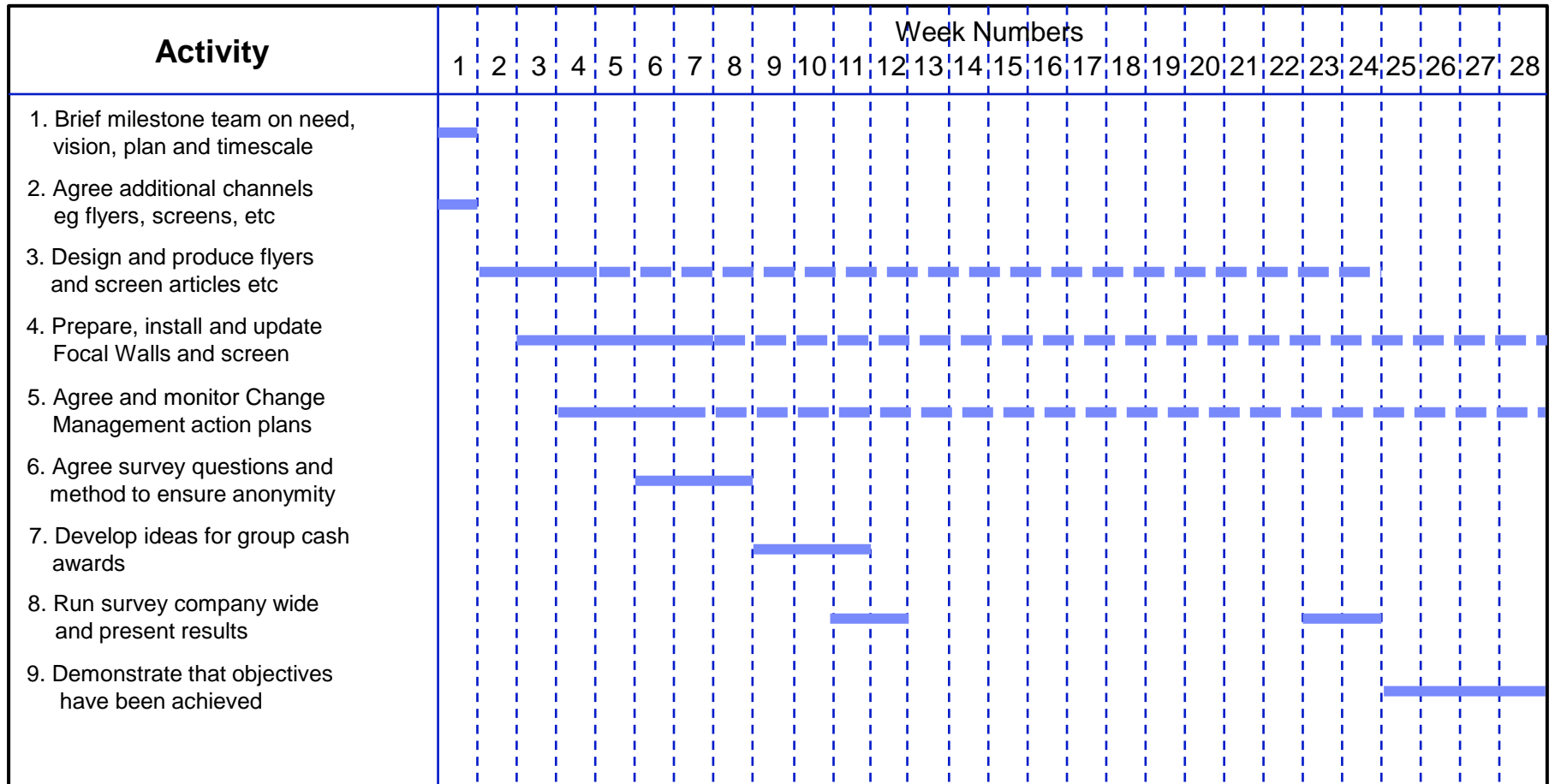
KEY CHANGE ISSUES:

- Introduce “horizontal” PUs
- Select PU leaders by interview and assessment centre
- Revise “vertical” support functions
- Ensure extensive preparations in advance
- Ensure extensive coaching and support during initial months

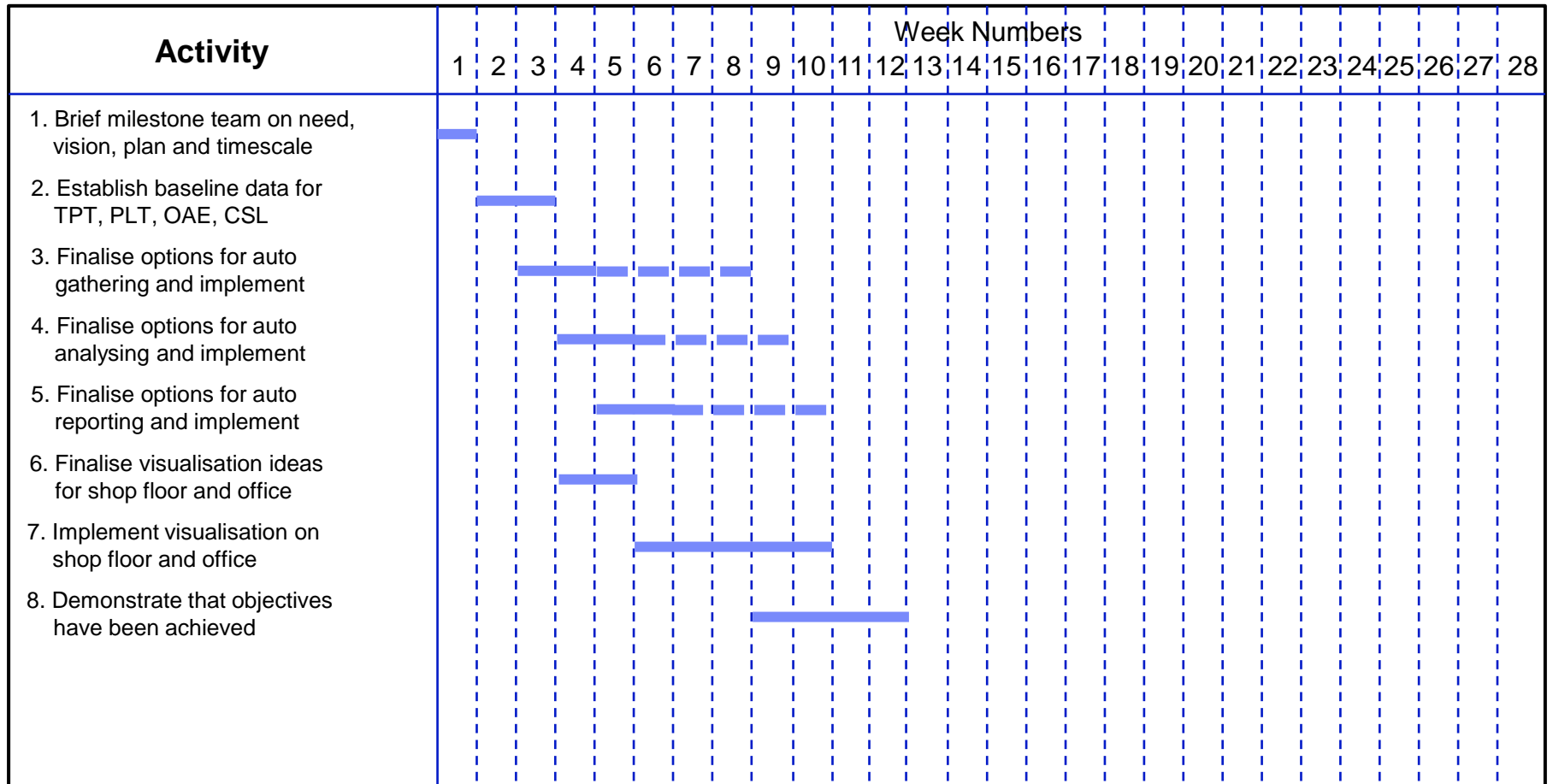
CRITERIA FOR SUCCESS:

- Self-directed PUs achieve all 'Elite' goals
- Clear examples of individuals raising their game

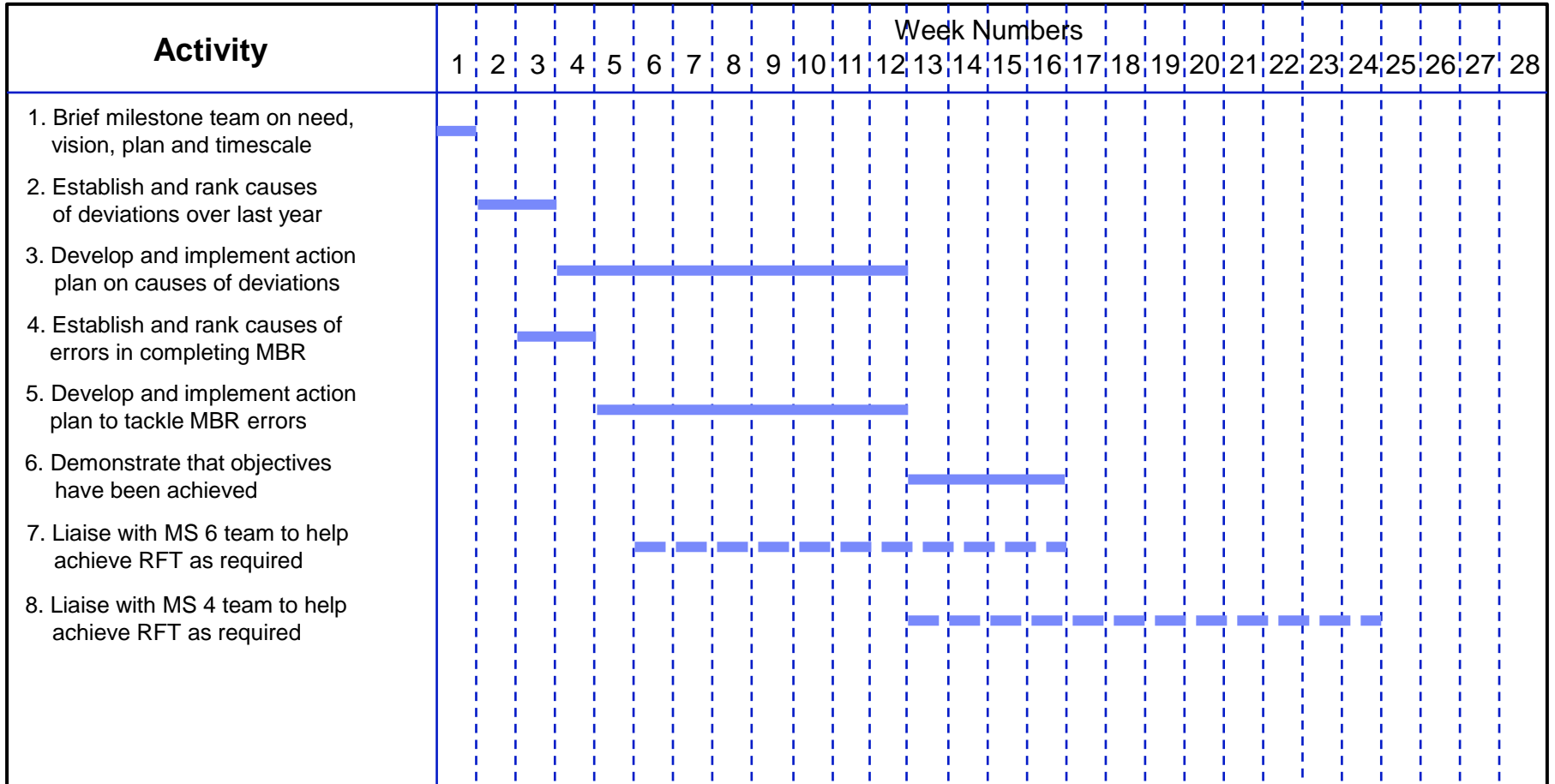
Milestone 1. Communications – Activity Plan



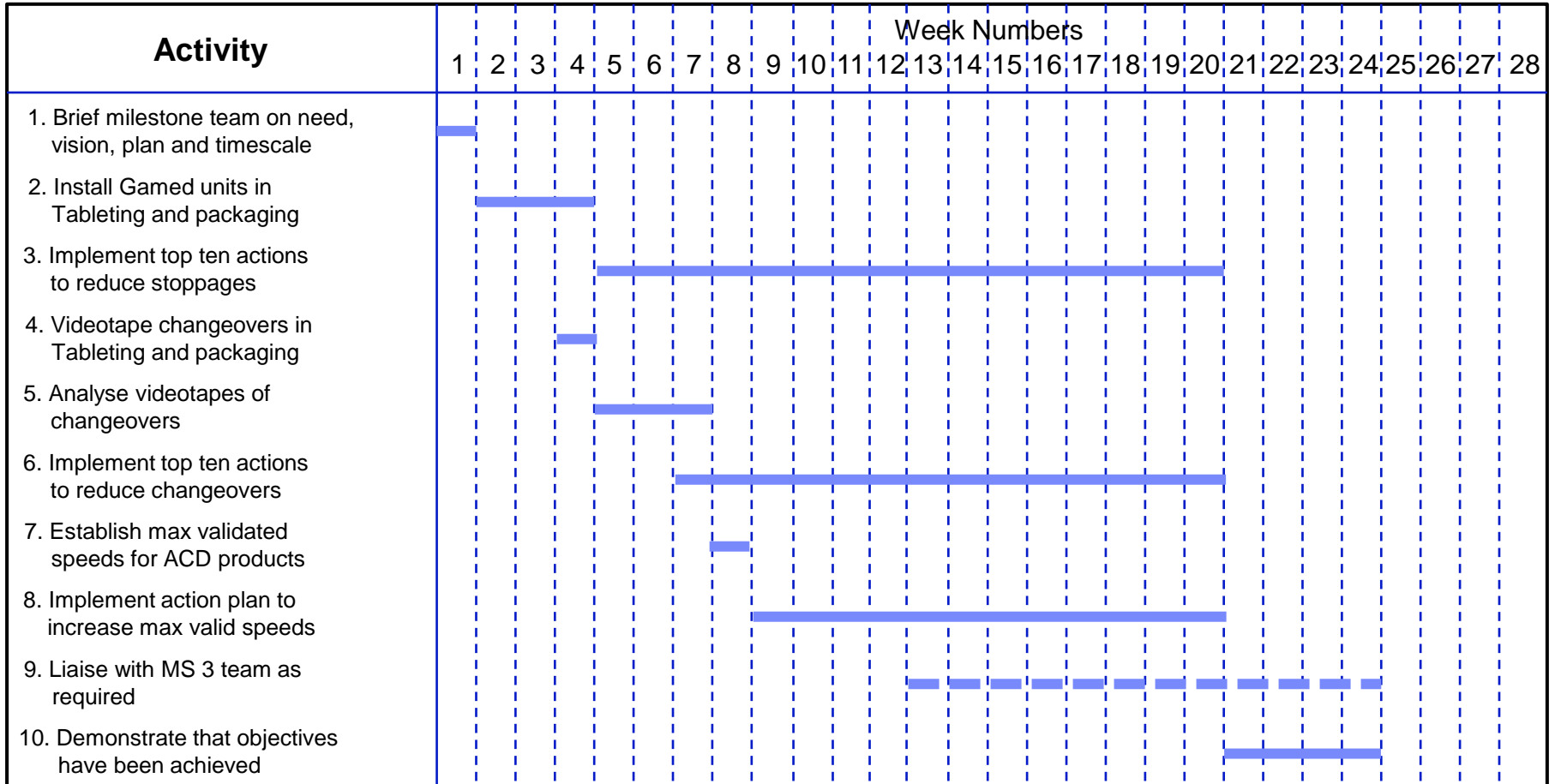
Milestone 2. KPIs – Activity Plan



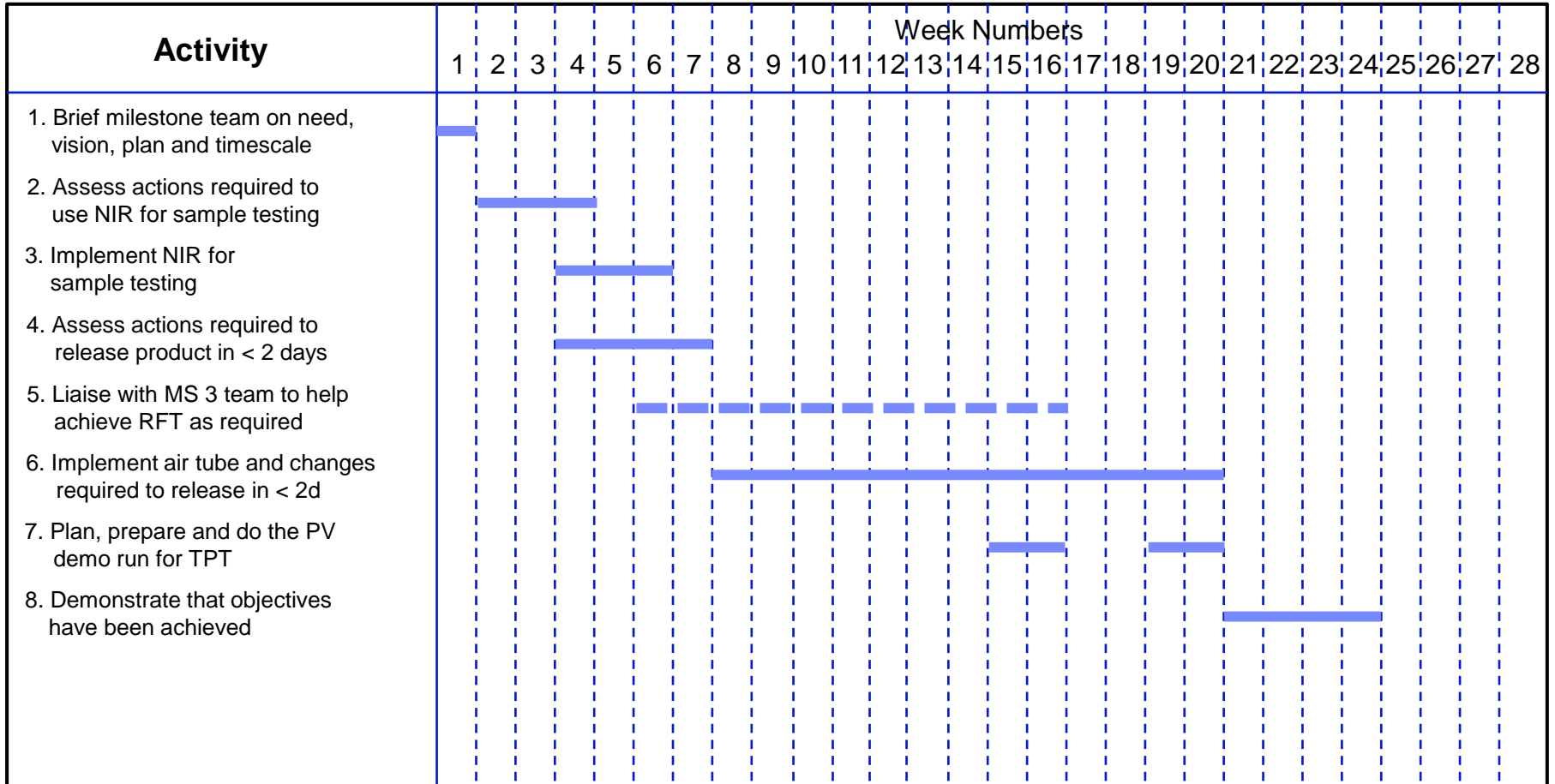
Milestone 3. RFT – Activity Plan



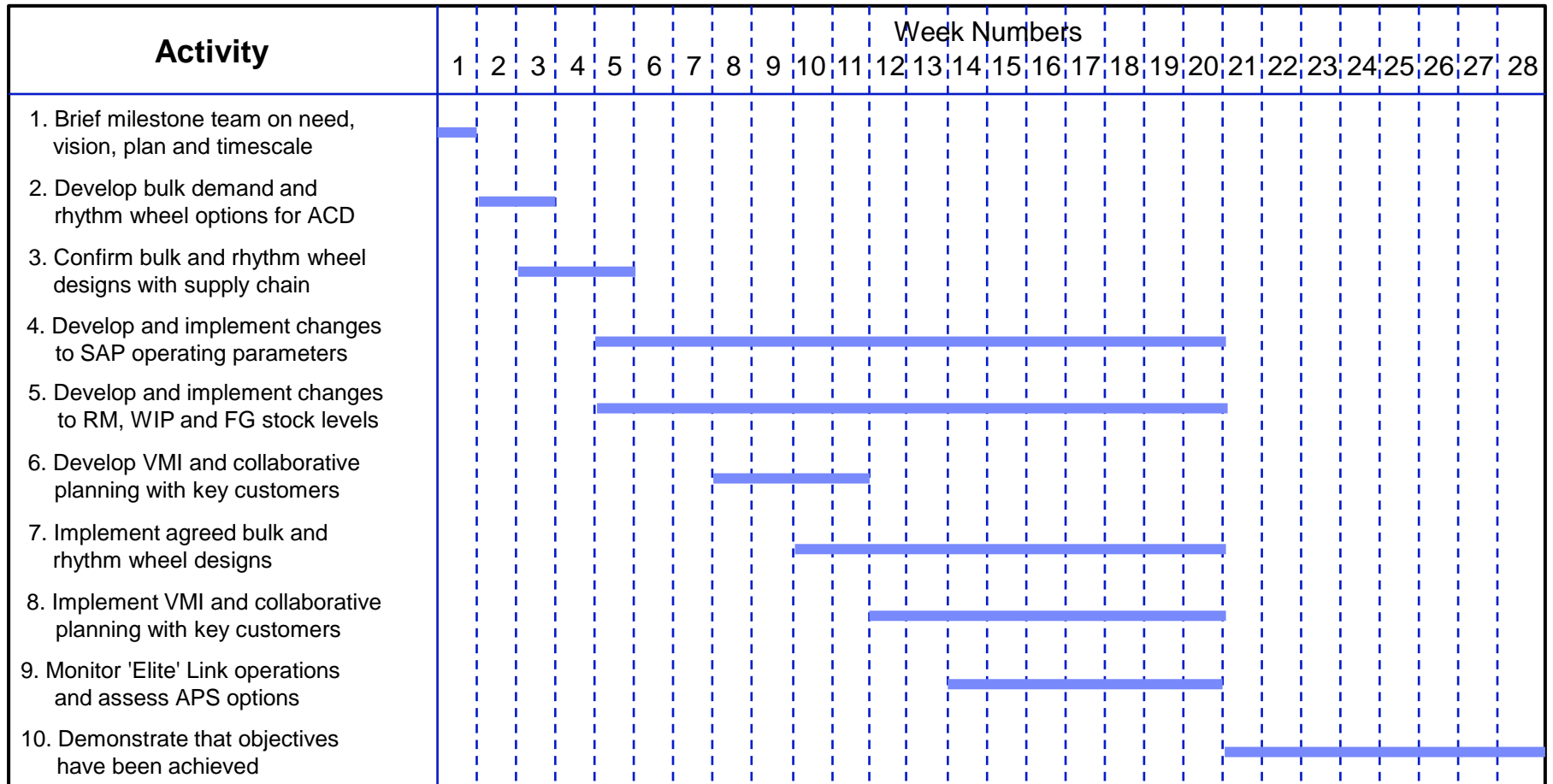
Milestone 4. OAE – Activity Plan



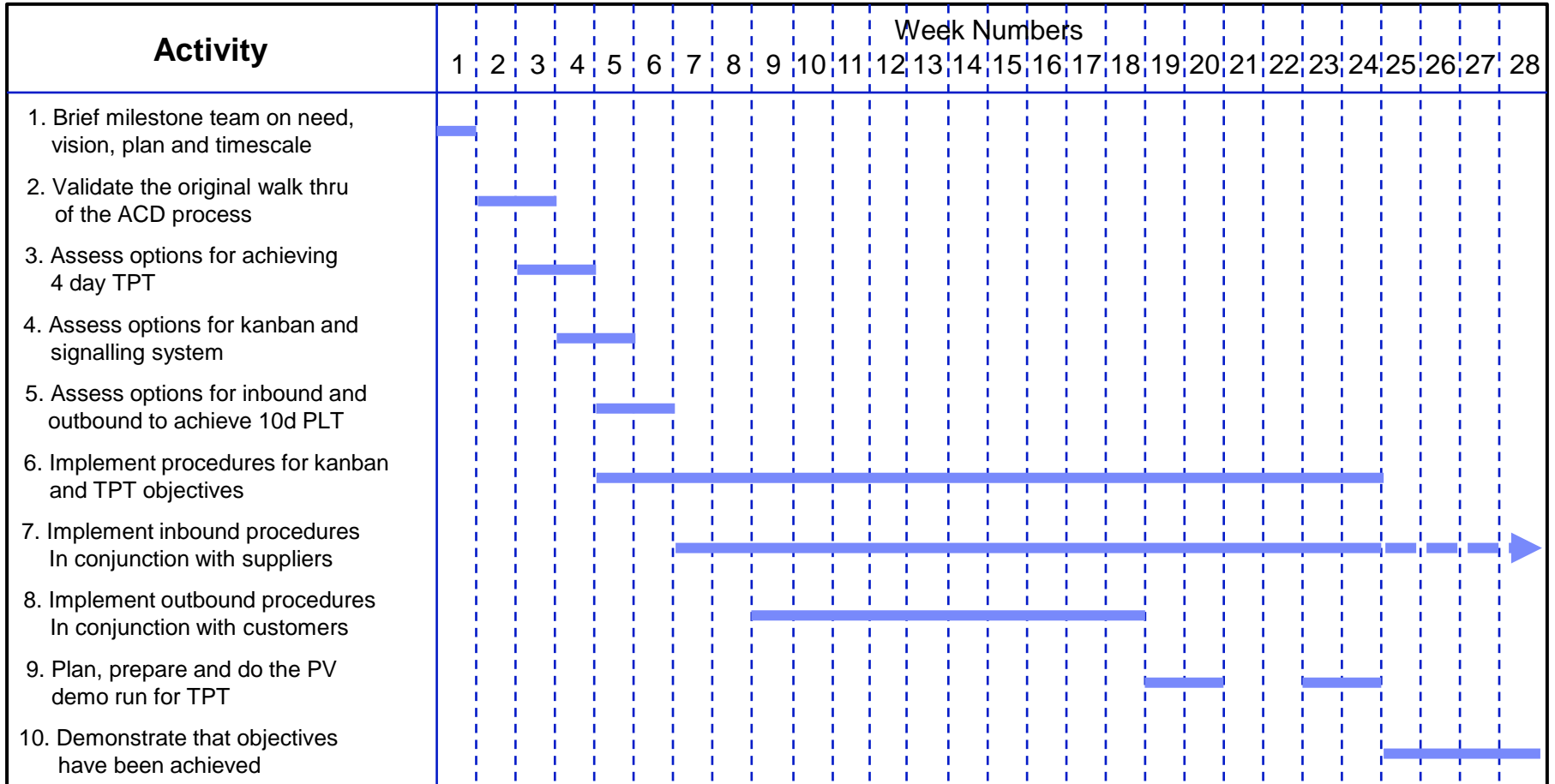
Milestone 5. QA/QC – Activity Plan



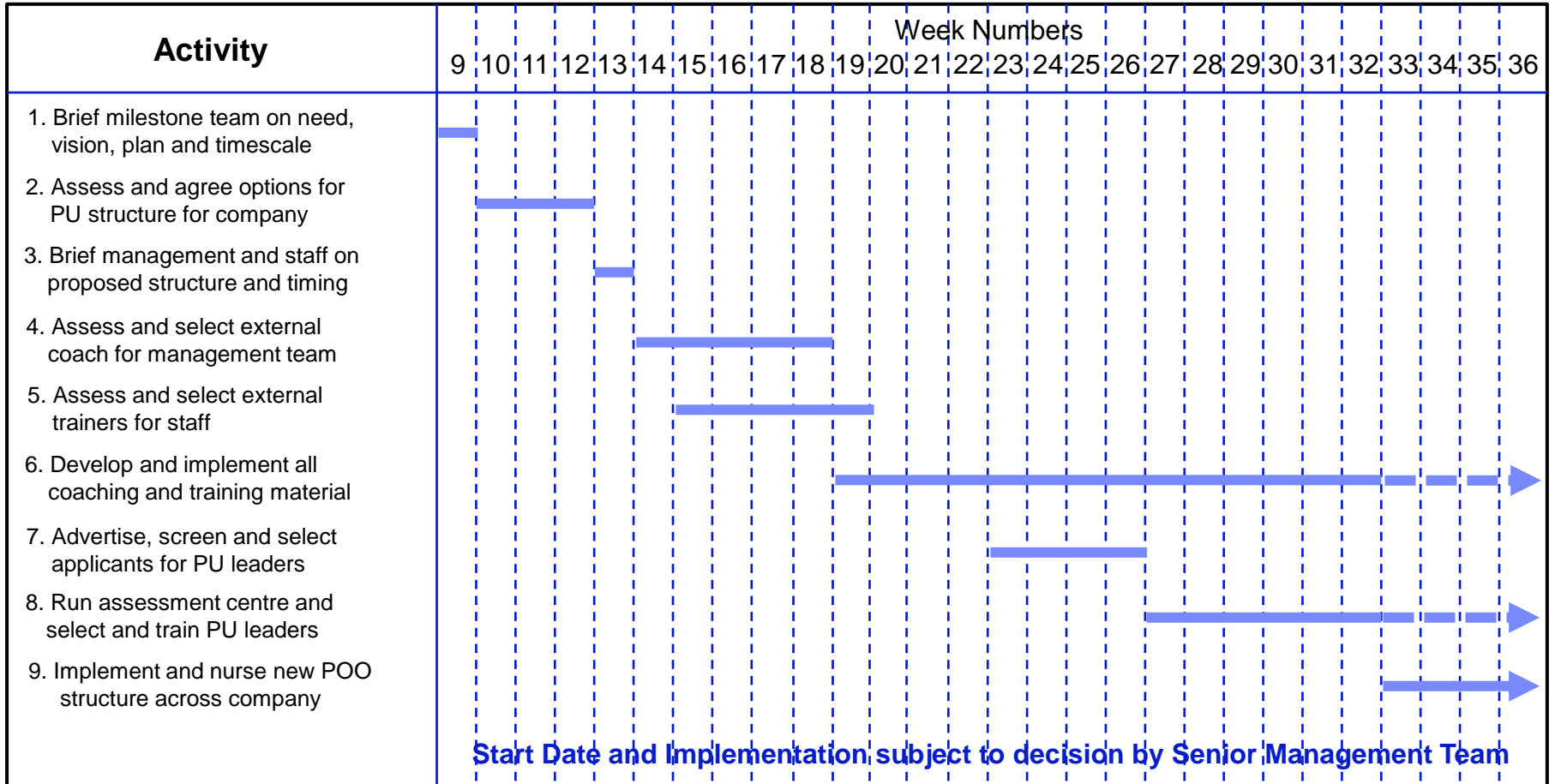
Milestone 6. Planning & Scheduling – Activity Plan



Milestone 7. TPT/PLT – Activity Plan



Milestone 8. POO – Activity Plan



Milestone Team Rules

- Meetings must be held weekly and total no more than 4 hours per week
- All team members must attend meetings and advise their manager accordingly
- Milestone teams must create and maintain team logs of activities
- All findings, conclusions, recommendations and actions must be recorded in the team log
- Milestone teams must follow the Activity Plan as set out in their individual Milestone Plan
- Criteria for Success as stated in the Milestone Briefing Document are not negotiable
- Allocated tasks must be carried out between meetings while maintaining normal duties
- Any proposed changes to the Activity Plan must be agreed with the 'Elite' Core Team leader
- Milestone team leaders must ensure sufficient preparation for Steering Group meetings

Steering Group Meetings

Date	Pres A: 15.00	Pres B: 15.30
02 Feb	MS 1	MS 2
16 Feb	MS 3	MS 4
02 Mar	MS 1	MS 5
16 Mar	MS 6	MS 4
30 Mar	MS 7	MS 2
13 Apr	MS 3	MS 4
27 Apr	MS 5	MS 6
11 May	MS 7	MS 4
01 Jun	MS 2	MS 3
22 Jun	MS 5	MS 4
13 Jul	MS 6	MS 7
03 Aug	Summary Meeting	Review of Project